

Patent Claims

1. Method of soldering an item to be soldered in a transit oven with:

heating of the item to be soldered in a preheating zone by means of a preheating device to a temperature which lies below the melting temperature of a solder which is in contact with the item to be soldered,

exposure of the item to be soldered to one or two volume flows of a hot gas with a specified temperature, which lies above the melting temperature of the solder, wherein each of the volume flows applied to the item to be soldered exhibits the specified temperature,

reduction of the volume flow, wherein the specified temperature is retained or increased, and

cooling of the item to be soldered below the melting temperature.

2. Method according to Claim 1, wherein exposure of the item to be soldered to the volume flow in a soldering zone comprises:

exposure of the item to be soldered to a first volume flow with a first temperature by means of a convector heater, and

after exposure to the first volume flow, exposure of the item to be soldered in the soldering zone to a second volume flow with a second temperature by means of the convector heater, wherein the first volume flow is larger than the second volume flow.

3. Method according to Claim 2, wherein the soldering zone comprises a first section for providing the first volume flow and a second section for providing the second volume flow.
4. Method according to Claim 1, wherein the volume flow is statically reduced.
5. Method according to Claim 3, wherein part of the first volume flow is branched off before entering the soldering zone in order to produce the second volume flow from the remaining proportion of the first volume flow.
6. Method according to Claim 5, wherein the branched off part of the first volume flow is used for preheating a further item to be soldered.
7. Method according to one of the Claims 1 to 6, which furthermore comprises: selection of a maximum permissible temperature of the item to be soldered and adjustment of the temperature of

the reduced volume flow to the selected maximum permissible temperature.

8. Method according to Claim 7, wherein the specified temperature is set to the maximum permissible temperature.
9. Method according to Claim 3, wherein at least a first convection heating unit of the convector heater is provided in the first soldering zone and at least a second convection heating unit of the convector heater is provided in the second soldering zone.
10. Method according to one of the Claims 1 to 9, wherein the specified temperature is maintained below a temperature which is critical for certain components and the temperature of the volume flow is increased with the reduction of the volume flow.
11. Method according to one of the Claims 1 to 10, wherein the volume flow is reduced based on a detection signal obtained from the item to be soldered.
12. Method of soldering an item to be soldered in a transit oven with:

preheating of the item to be soldered to a temperature below the melting point of a solder,

exposure of the item to be soldered to a first temperature lying above the melting temperature by means of a volume flow,

exposure of the item to be soldered to a second temperature lying above the melting temperature and which is lower than the first temperature, wherein the volume flow is changed.

13. Method according to Claim 12, wherein the volume flow with the first temperature is smaller than the changed volume flow with the second temperature.
14. Method according to Claim 12, wherein the volume flow with the first temperature is higher than the changed volume flow with the second temperature.
15. Device for soldering an item to be soldered with:

a preheating zone,

a soldering zone which can be exposed to an adjustable volume flow of hot gas of adjustable temperature by means of a convector heater,

a cooling zone, and

a control unit, which is at least functionally connected to the convector heater and is formed so as to cause the volume flow with a specified magnitude and temperature to act on an item to be soldered in the soldering zone and to cause the volume flow with lower magnitude and the same or higher temperature to act on the item to be soldered.

16. Device according to Claim 15, whereby the soldering zone comprises at least one first section and one second section in each of which the volume flow can be provided with different magnitude.
17. Device according to Claim 15 or 16, wherein at least one preheating zone and at least one cooling zone are provided.
18. Device according to Claim 17, whereby the convector heater comprises a controllable gas guidance system to expose at least the preheating zone and the soldering zone with hot gas at a defined temperature and volume flow in a controlled manner.
19. Device according to Claim 16, wherein the convector heater comprises at least one convection heating element in the first section and at least one convection heating element in the second section.